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Is there a role for architects in mainstream private sector house building?

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Abstract

The paper draws on a recent research project “Design at the Heart of Housebuilding”, commissioned by the Scottish Government, which was undertaken in 2006-7 and published in early 2008. This research focussed on the conceptions and practice of design within private sector house developers in Scotland, which is used here as a basis for speculatively exploring opposing values between private sector housing developers and architects in housing design. Drawing initially on reviews of this relationship in the initial mass private sector housing provision in the inter-war period in the UK the paper then compares this with the more recent position as evidenced in the research, two generations later. It identifies and analyses the basis for a perpetuated mutual wariness as a way to understand the potential for change in current trends, and ends by highlighting some examples of alternative collaborations, where the skills and values of architects are more fully articulated with those of developers and manufacturers in innovative housing provision, including forms of mass customisation.



Figure 1. Suburban Edinburgh (1997)

Introduction

"We have surrounded our towns with an inefficient fringe of suburbs" leading to "millions of pounds a year lost by clogging traffic" and loss of place identity as towns join up and are engulfed by cities – "if half the energy and money poured into the suburbs in the last 17 years had been spent on the towns inside them, the country would be a better place..." These words of Geoffrey Boumphrey, in a debate with John Cadbury in *The Listener* in 1935ⁱ, still resonate over two generations later in contemporary discussion on private sector house-building across the UK. This debate was significant as Boumphrey represented the *avant garde* architectural movement in the UK, soon to become the establishment.ⁱⁱ His counterpoint in the debate, John Cadbury, agreed with various critiques of the unplanned suburb, but represented the older Garden City Movement – and, in defence of suburbs, Cadbury also highlighted the achievement of mass housing production and the provision of gardensⁱⁱⁱ.



Figure 2. Housing at Port Sunlight (1911-13)

In fact much of the critique of suburbs had been extant for several decades at the time of the debate.^{iv} The three main areas of critiques were: criticism of architectural design and construction (especially stylistic eclecticism – including false historicism – and repetition); criticism of estate planning (especially sprawl, lack of social amenities and generation of traffic); and criticisms of the values of the inhabitants (especially the inherent individualism and choice). While architects indulged in all three, they emphasised the first and last, with planners taking precedence for the second. This ambivalent position towards mainstream private sector housing development, as being popular yet decried by most architects, is still with us over 70 years and two generations later.^v

Why is this? Is it because most mainstream private sector housing developers eschew the involvement of architects or is it because architects refuse to get involved? This paper draws on a recent study of attitudes to design of private sector housing developers across Scotland and sets this within an historical context. Although this recent study focused on empirical evidence of how private sector housing developers conceive of, and engage with, design, the paper takes this further to focus on the above questions, and suggests that both answers above have some truth – i.e. private sector developers and architects have been mutually wary of each other (and often openly critical) since private housing development first became mainstream. While the

empirical research focused on the position of the housebuilders, this paper (more speculatively) considers the relationship of the private sector developers to architects and the implications for architects, and queries whether there is any reason or likelihood for this 'stand-off' to change to a more fruitful collaboration in future as a way to stimulate debate. In so doing the paper draws on a specific body of research which in itself throws up several other potential areas for research, but specifically investigates the different underlying values concerning design between private sector housing developers and architects.^{vi}

Looking back at the first wave of mainstream private sector house building

Mainstream private sector house building in the UK took off between the two World Wars – i.e. around the time of the above debate. Despite the Modern Movement's commitment to mass housing, in fact most architects only engaged with state and other social sector housing, where they were influential, and never engaged significantly with private sector delivery. Although state interest in providing housing for the (generally urban) poor began in the late 19th century, relatively little state housing was actually provided prior to the First World War.^{vii} In the 1920s and 1930s this changed with significant state investment in housing, however the government soon realised that it was limited in its capacity to provide for all in need and it concentrated on the poorer (but not necessarily poorest) populations and especially those in 'slum' conditions. This left the onus on the private sector to provide for the bulk of the rising effective demand – which it responded to strongly as new forms of finance through building societies and cheaper land became available. The vast majority of this new private sector speculative house building was in new suburbs – which represented more than a third of the total British housing stock at the time.^{viii}

What role had architects played in these new, generally suburban, private sector housing developments? According to relevant literature, very little, except to criticise (with planners) the resulting uncontrolled sprawl - and advocate for apartments as an alternative.^{ix} The result of private sector engagement was that, whereas at the end of the First World War there was an estimated 600,000 households in need of housing, within twenty years there were more houses than households with the means to buy them. Paradoxically, perhaps, it was this potential over-supply which led the Royal Institute of British Architects (RIBA) to encourage its members to engage with the speculative house builders, as the growing saturation of the middle class suburban market led to changes in supply, including stimulating new demand. ^x

Ian Davis^{xi} argued in the 1980s that the essential issue behind lack of engagement of architects in mainstream private housing development in the 1930s was one of opposing values. The values of the Modern Movement in architecture were in opposition to the values of the private sector developers and builders as well as those of the house purchasers – not just in house form and style, but also concerning less tangible (and less articulated) issues such as choice, aspiration, dreams and symbolism. These can be summed up in a more modern phrase – lifestyle – and speculative builders understood the importance of this from an early stage. This was especially so from the late 1930s when supply began to out-strip demand within the main middle class market and marketing became more important for selling houses to wider social groups. A new feature of attracting a wider market segment, yet maintain reduced risk, was to design for ambiguity – which particularly irritated the Modernists.

Davis suggests such ambiguity was evidenced in the historical eclecticism in style, yet modern function in spaces such as bathroom and kitchen; the desire for cosiness and enclosure, yet bright sunlit spaces; the desire for individual opportunity, identity and

privacy yet without adverse effect on public security and community inclusion; the desire for appearance of affluence and status, yet low economic cost; and the desire for practicality but with sufficient hints of modernity.^{xii} This was directly opposed to the purist aspirations of modern architects, as ‘what the average purchaser wants as regards the elevations of his house is a question of psychology rather than art’.^{xiii} One way to achieve this for the speculative builder was to separate the functions, and to some extent the construction, of the house from its appearance, applying architectural facades and detail to fairly standard plans and construction techniques – (see below on ‘jacketing’).

When, after the Second World War, the government estimated that 4 million houses were needed to replace those damaged or inhabitable as well as pent-up demand, the dominant role for speculative private sector housing development significantly changed again as the balance of public and private provision altered radically. In the first five post-war years state house production comprised three times that of private sector in the first half million houses. In parallel, architects found a new role in state employment and architects in the Modernist tradition led the way with state housing estates such as Roehampton for the London County Council (1959), and medium and high rise apartment blocks became a standard solution for state-assisted local authority housing by the 1960s – although suburban development continued, including new state funded estates. This, however, changed again with the Ronan Point collapse in 1968 and rapid abandonment of high rise, which coincided with increasing fiscal restrictions on state-funded housing, and the private sector once again came to dominate supply from the late 1950s.^{xiv} From 1959 to 1999 private speculative housebuilding in the UK remained the major form of supply except in the years 1970 and 1975-77 (times of severe economic recession) and in fact only dipped below 80% in four of the last 14 years of this period.^{xv}

How has the relationship between private sector house developers and the architecture profession changed from that of the 1930s when mass private sector delivery first became dominant? This paper looks at recent evidence for Scotland which comes from interpretation of an empirical study commissioned by the Scottish Government concerning design and private sector housing developers, substantially expanding a similar study in England of a decade previous. In doing so, it examines the relevance of the following key critiques of mass private sector housing which are embedded within the early stand-off between architects and developers as described above, examining these in the contemporary context:^{xvi}

- Critiques of the nature of house design – especially (generally historical) eclecticism in architectural treatment of facades irrespective of context;
- Critiques of standardisation/repetition of units; and
- Critiques of the nature of the lifestyle oriented marketing and embedded ambiguity in social and cultural symbolism.

Looking at mainstream private sector house building today across Scotland

In the latter part of 2006 the Scottish Government's Architectural Policy Unit published a research tender entitled 'Design at the heart of house building', to explore whether there is clear vision and understanding of design and design policy amongst the key stakeholders; to understand issues surrounding skills and training in design in house-building organisations^{xvii}; to identify examples of good practice where house-builders have overcome barriers and successfully placed design at the heart of their house-building programme; and to disseminate such examples of good practice within the house-building industry to further promote the value of design more effectively so that house-building in Scotland becomes a design-led activity.^{xviii}

The project was commissioned in three phases based on different prescribed research methods: a pre-coded questionnaire email survey to cover as many Scottish private sector house-builders as possible, (to provide an overview of the sector's operation and the role of design within this); semi-structured interviews of a sample of the responding firms, (to investigate initial findings in more depth and identify possible case studies)^{xxix}; and a series of case studies of good practice vis-à-vis design in the development process, highlighting the impact of this on the final housing product.^{xxx} The study produced a wealth of information across a wide range of aspects of relevance.^{xxxi}

None of the developers who responded to the first phase of the research considered design to be "unimportant", a majority considered that it was essential to their developments, with the remaining considering it was very important or important. The key issue is - what did the developers consider to be 'design'? To the majority of firms, the most important aspects of design were the interior design of the house and the estate layout. The external building design and wider urban design were considered the most important by the fewest firms.



Figure 3. Townhouses at Jordanhill, Glasgow (2008) Cala Homes designed by external architects in a 'contemporary' style

To understand how private house developers value design, the first phase questionnaire used lists of pre-coded possibilities^{xxii}, and were also given the opportunity to suggest other answers. The majority indicated that design added to sale value; helped with obtaining planning

permission; fitted company objectives; and improved the company image - with slightly fewer responding positively concerning making sales easier or quicker. However, the value of design achieved a higher ranking factor for executive homes than mid-market developments and lower for starter homes – with economic considerations dominating in all cases. Design quality was generally more important than even ‘buildability’ (a highly valued aspect) and sale price in mid-market and executive homes. This strategic input of design, based on an analysis of economic returns is fundamentally at odds with most architects’ view that design should be equally of value in low cost, modest homes as in the top end of the market. The second phase semi-structured interviews permitted clarification of these design related issues as it was fundamental to gain an insight into the different perspectives that prevail.

In this, the influence of management personnel, and the business model was seen as a key factor. Companies, which are responsible to shareholders, typically reported that maximising profit is the key priority and thus focus on reducing costs to the minimum. Design quality is important for an established firm to maintain its position and reputation, with developers stressing the importance of a recognizable product and design quality consistency helping to establish a brand. *The research documents factors which the developers considered to either assist or inhibit the achievement of design quality^{xxiii}. The legislative framework, particularly building regulations, are seen as providing the basis for a level playing field commercially and are therefore generally welcomed. Planning and development control was strongly criticised, however, as being inconsistently applied, unpredictable and inflexible.* Importantly, a few interviewees equated house design to product design rather than architectural design, and - in particular - drew parallels with car design. This attitude is particularly evidenced in the marketing brochures which focus on named house types, rather than a specific house in a specific location. In some cases, houses are sold from the product literature and site location alone.

In expanding on what is perceived as design quality, respondents defined this using a wide range of factors, with the firm's reputation and customer perception being key issues as well as quality of specifications and 'buildability'. Buildability relates to its ease and speed of on-site construction, which is influenced by the procurement method and whether the firm has its own construction staff. It is also seen as honed through a careful pruning of the build sequence for efficiency. Some firms saw the elaboration of the exterior with decorative elements as indicative of quality, others favouring simplicity on the exterior, with quality driven by interior specification of kitchens, bathrooms etc. External building design was ranked as of lower importance in relation to design quality with a number of developers speaking of the exterior of houses like "jackets" that are seen as interchangeable, depending on the quality of specification/ materials, how it fits in the location, and attitudes of planning authorities. The 'product', being essentially, the plan layout, and overall form of the house.



Clothing the house

Fig 4. Tailored jacket by Henry Poole

The metaphor of 'jacketing', clothing or dressing an otherwise standard product to re-dress the house as 'contemporary' or 'traditional', or for a specific suburban or rural location, was common to most of the developers surveyed, and has the effect of extending the range of products without additional investment in developing new plan forms.

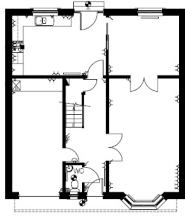


Fig 5. The same house type is dressed for suburban and rural locations

The less plan form is changed, the more profitable the house type is likely to be as the design will fit within existing specifications, component sizes and so on. Thus quality is maintained by using tried and tested products, but some variety is introduced. The developer keeps a tight control on external architects employed in this process, often suppressing what may be perceived as ‘over-design’. The general attitude is that architects are useful so long as they are kept on a tight leash retaining a subordinate role as sub-contractors - with buildability, and hence profitability, being seen as paramount.^{xxiv}

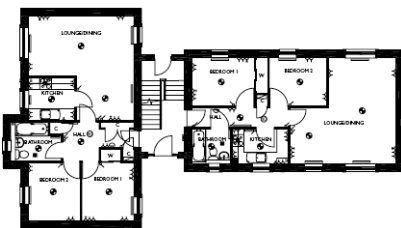


Fig 6. The same flat plan is modified using a projecting bay window

‘Jacketing’ can take a variety of forms analogous to clothes design and the fashion industry. The idea that the house buyer shops for a product largely by ‘lifestyle’ image is a strange concept for most architects, but it is in fact the main basis by which houses are marketed and sold. Although the exterior design was ranked of lower importance than interior layout by a majority of the developers, both are used in lifestyle image construction – often independently.

The resulting separation of outside from inside in design, can be problematic for architects trained in the Modernist tradition. The sense that one has to be honest in the expression of inside spaces on the outside and to design in response to site, climate, and sunpath, is at

the root of a contemporary architect's training and yet the developer has no such perception. Houses from the Arts and Crafts period^{xxv}, are useful to consider as they demonstrate an intermediate position, where the façade sits between inside and outside as a mediator. Elevations respond to stimulants from the exterior context; a garden space or vista, but also express the function of interior rooms on the exterior façade with a clear hierarchy of window position and type. On the contrary, the legacy of the Bauhaus was that former teaching methods, where students would apply historical styles according to the building to be designed, were radically altered to the position where individual creativity and innovation were seen as progressive. In general, the Modern Movement's rejection of stylistic compositions in favour of an expression of a distinctive architecture, in the materials and construction techniques of its time, remains the dominant attitude of architects today.

Subsequently, Robert Venturi invited architects to reconsider this position and argued that the contradictory demands of inside and outside, private and public, should be accommodated within the façade. Moreover he noted that it was not necessary to resolve the contradiction and that a degree of discord is a positive result of this tension “...*Since the inside is different from the outside, the wall – the point of change - becomes an architectural event.*”^{xxvi} He suggested that Modernist demands for free-flowing space, uninterrupted by the façade, denied the possibility of providing contrast and ambiguity between inside and outside as an essential characteristic of urban architecture. However, his work has been largely sidelined, perhaps because of the discomfort caused by the superficial post-modern facades that emerged rather than any fault with the text. With a resurgence of interest in surface, architects are beginning to re-discover the role of the façade as an architectural element in its own right. Considering some examples from private house developers today cited in the report, one firm had developed open plan interiors as a response to perceived changes in lifestyle, but had no issues with putting

different window types to the front and back of the same large room. [Fig 7] The argument was that the home-owner would wish a traditional front and a contemporary back, facing the garden. Most contemporary architects would find this ambiguity of expression deeply unacceptable.

The private housebuilder's focus on the interior layout, carefully constructed around a particular lifestyle, leaves the role of the designer of the exterior as more akin to that of a stylist, predominately concerned with appearance. This counteracts the typical focus of an architect's training in which interior layout is generally seen as an integral part of an holistic approach to concept, structure, construction, spatial configuration, light and form.

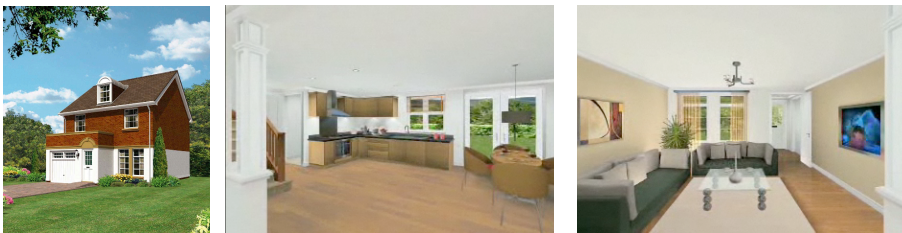


Fig 7. Ambiguity between inside and outside from.....

Concluding observations from the study

In that marketing lifestyles is a dominant determinant on private developer housing design, the general finding of the recent study was, unsurprisingly, that the economics of private sector housing dominates private sector developers' activity^{xxvii}. However, design quality *is* considered a significant factor in the economic equations – albeit significantly lower in starter homes. The most important aspect to note for this paper is that, in general, the developers' understanding of the interests of customers in house design does not reflect that which they believe architects are predominantly interested in concerning design. House buyers were seen to be more likely to consider quality as an amalgamation of factors, some of which are based on perceptions of feeling good, safe, pleasing to the eye, not too repetitive, and fit for purpose – i.e. the set of values identified in earlier critiques

noted in the introduction. Developers also place considerable value on a designer's prior experience in the speculative development sector and consider this crucial to economic aspects of design such as "buildability". A number of interviewees commented that architects may have greater design training, but produce designs that are complex and inefficient to build.

Despite this, and contrary to popular belief of many architects, all but one firm surveyed actually used architects as part of their design operation, with this varying considerably between firms concerning whether they were employed in-house or through bought-in services. In general, due to fluctuations in demand for design skills, many firms prefer to buy these services in as needed. However, here there was loose use of the term "architect" with this not necessarily referring to architects registered with the UK Architects Registration Board.^{xxviii} In addition, the number of those referred to as "architects" employed was also limited in relation to other design-related staff, such as building design technologists, and considerably less than other technical staff less directly involved in design.^{xxix} Whether a firm used in-house or external design staff also depended on the nature of the site, with in-house staff more often used in green field sites, where standard 'products' are most often used, and external architects more often employed in urban, brown field and affordable housing sites. Although the recent recession has had a severe effect on the industry, at the time of the study developers had been increasing their use of design staff (both in-house and external).

Not only is the type of site a factor in the development process, the research confirmed that the form of land supply has a major impact on housing design. Design time becomes limited when land has been the subject of a competitive land purchase and developers need to recover costs as quickly as possible. This can be exacerbated by lengthy planning and related approval processes and may result in less risk taking with design in such

locations, with a predisposition towards bland, off the shelf developments using standard house types. The fragmented nature of much land release in Scotland and the lack of overall spatial planning for a number of adjacent sites and the price of land itself also forces developers to optimise the number of units built on the site, and hence, they argued, reduces site layout and urban design options. By comparison, land that has been 'banked' can be developed more slowly accommodating greater design development by external consultants.

Amongst other issues, the study investigated trends in modernising construction and standardisation. Off site production was reported as a growing phenomenon, generally seen to improve quality of the housing product as well as responding to the shortage of construction skills and new product availability. The extent to which prefabrication can be developed, however, depends on economies of scale and stability in demand – and the housing sector in the UK is seen as quite unstable given the low resource investment. All developers believe that there is some variety in design between their developments and developments may have both individually designed aspects, sometimes through 'jacketing' and standard design elements. Most firms base their activity on some form of standard house type, arguing that repetition of design with some form of standardization (whether in house design or component design) led to benefits in improved quality as well as buildability and hence costs, both being factors highly valued by the developers. Designs which are predominantly individual, usually termed "bespoke designs", only tended to be used as solutions for specific sites, such as small/difficult brownfield sites^{xxx}, and most developers did not consider such designs to be essentially better in terms of the individual house product, albeit they are more likely to improve the sense of place and general urban design. As such, some form of standardisation was widely believed to give better quality in terms of the key values for the speculative developer: liveability, usability, and buildability.

The research notes, in conclusion, that design quality is perceived by speculative developers as a complex mix of factors dominated by economic issues of supply and demand revolving around costs and sales potential - buildability, standardisation, market assessment, and customer feedback. The visual or spatial nature of design is secondary and individuality of design is generally seen as raising costs, providing less certainty in sales and potentially lower quality. In this sense, private sector housing developers tend to see themselves as offering a manufactured product more than a crafted product, and the economics of some elements of mass production do affect their activity. However, what is marketed is not perceived of primarily as a manufactured product, but in fact a lifestyle, as is also the case with other manufactured products such as cars. It is important also to note, that partly due to land availability, the supply of these partly mass-produced lifestyle-oriented products is conditioned by the fact that there is excessive demand in relation to supply, and hence market research for new and innovative design is superficial, even when driven by serious in-house review and analysis of customer feedback, only leading to incremental change.^{xxxi}

The findings of this study thus largely correlate to the two main areas of criticism levelled by architects in the earlier dominant private sector housing development period, i.e. those concerning house style and consumer lifestyle orientation in design – although providing a substantially more nuanced understanding. Perhaps contrary to popular belief, architects are involved in mainstream private sector housing design, albeit in a subordinate way. They are seen by the developers to tend towards individualism in design, which is considered inefficient and more costly but can have an important role when innovation is required. Even though there is as such no complete ‘stand-off’ between the developers and architects, both are still mutually very wary and critical of each others stance.^{xxxii} How might these two approaches be brought more closely together to mutually benefit each

other? Given the stated links of housing development with mass production, can this serve as a signpost for the future?

Looking forward

It is fairly obvious that most of the global built environment is not designed by architects, the vast majority of such buildings being residential, which is also the built form with which most people have direct and intimate dealings.^{xxxiii} How houses are produced varies enormously across countries, ranging from the common 'self-build' solutions of the United States (actually self managed building), through to the mass production by ever larger private sector firms in the United Kingdom, to increasingly sophisticated prefabricated housing supply in Japan – three very different expressions of mature capitalist housing where private sector is the dominant actor and most housing is owner-occupied.^{xxxiv} In many other 'Western' countries the private sector continues to play a strong role, but this may be in rental supply or off-set by state-funded housing (or other variants of state-support). This paper does not attempt any international comparison concerning the relationship between architects and mass private sector housing developers, but highlights the continuing trends in the UK over the past 70 years or so and queries if, and how, this might change in future.

While such a study is thus rooted in a specific context (i.e. in this case, Scotland as typical of the UK), in fact elements of the trends are influenced by international trends. This section of the paper thus also includes reference to such wider international trends of the mass housing production process. In particular, it considers the possible impact of new materials and production processes which are the result of the global economic system and bring significant new opportunities and/or challenges for architects'

actual/potential involvement in mass house delivery. We argue here that whether these innovations are responded to as either opportunities or challenges is likely to either lead to more involvement or a renewed stand-off between architects and the developers in this crucial sphere of the built environment in future. However, it is important to stress that this section is rather more speculative than the above analysis, and seeks to stimulate debate within architecture. It is not intended as a systematic overview of alternatives to current limited collaboration, but examples of alternative approaches of relevance to the main argument concerning how architects and private sector housing developers could collaborate differently.

There are some positive examples of developments where architects have been employed by private housing developers in a conventional Design and Build procurement route. Most notably, perhaps the 2008 Stirling Prize winning development at Accordia in Cambridgeshire. Here, the development of 400 dwellings by developer – Countryside Properties (Southern) Ltd - is evidence of the gap being closed from both sides. The developer responded to a strong lead by the local authority planners to appoint a high profile practice, Fielden Clegg Bradley^{xxxv}, and saw the commercial viability of design quality as adding value in relation to quality of life, that could be effectively marketed. Equally, the architect, Keith Bradley notes “architects need to pay more attention to the ordinary stuff of our cities and towns” and importantly understood the need to work within the commercial realities of the developer. The success of this particular development seems to be a product of shared goals forged between, developer, city council, development control and consultants.

Fig 8 Accordia images (copyright required)



However, the lack of experienced planners who could take a lead, producing ambitious planning briefs within which private developers can have greater security in relation to obtaining consent, was identified as a crucial inhibitor to achieving design quality in the Scottish study. On the other hand, Planning Policy Guidelines^{xxxvi} were generally welcomed by developers in the Scottish Study as aiding design quality, and the requirement for higher density, low rise developments with an emphasis on place-making suggests is one area where architects were being employed by the developers to modify standard products or to develop terraced or linked house types to meet these demands. Accordia does not, however use prefabrication or any Modern Methods of Construction (MMC) and it is still not easy to see how such one-off developments could serve as an antidote to mass-market standardisation. Given that the private sector developers aspire to produce a mass produced product, as discussed above, a key issue is the extent to which mass production actually happens in the housing supply process. In fact, in the UK, mass production through prefabrication has had much more impact in component manufacture than on prefabricated housing per se. Prefabricated housing actually has been a dream of many architects in the past^{xxxvii}, although most of these dreams never made it past prototype stage (and many never past the paper stage).^{xxxviii} In contrast there have been many firms turning out prefabricated houses since the mid 19th century – often very successfully in market terms. Examining why architects do not succeed in designing mass production of houses, and how others do so with such success can thus provide hints to the stand-off between architects and

private sector developers in mass housing design and how this might be overcome.

Davies, in his book on architecture and prefabricated housing^{xxxix}, claims that the two main issues are not the level of prefabrication *per se*, but the nature of the production process and the nature of the general market. Where many architects get it wrong, he argues, is in approaching housing prefabrication as a concept in itself and not just as part of specific house production processes. Prefabrication in such processes in fact range from the fairly minimal prefabrication of timber framed structures (e.g. the ubiquitous balloon frame of the US and other variants such as Walter Segal's houses) to the complete prefabricated unit (e.g. Murray Grove Housing for the Peabody trust in East London by Cartwright Pickard). Whether minimally manufactured and using extensive on site fabrication, or the opposite, the key is in fact not the *generic* concept of maximizing flexibility in **product**, but developing the most economic **process** of fabrication, which also has to be understood within specific actual market demand. The more demanding the market, the greater is the tendency for more customisation and vice versa. The key problem is the tendency for architects to stress prefabricated product over prefabricated process.

The other key issue is that of the authority of the design and what is considered the creative act by architects. Davies argues that to make architecture as opposed to buildings the discipline has come to assume that one needs to be reflective of a form of context (whether regionalised or thematic) and 'create' something new which adds to this in some way.^{xl} As has been noted, the roots of this position vis-à-vis creativity are historical. The 'inner creativity' prized by the Bauhaus emerged as a shift in the philosophical approach to design, albeit aligned to modernist ideals. While Modernism rapidly became another stylistic 'tradition', the concept of original architectural creativity

remained firmly embedded and is ever more emphasised today through the professional training process in higher education.^{xli}

While there is no clear sanction for any architect using the same design various times, this is seen as lacking the original creativity, highly valued by the architectural peer group. Hence there is a pressure to either design each project anew, with perhaps some repetitive elements, or design a system that provides for repetition. As an example of the polarisation of this position, architects are still sometimes involved in producing designs for repetition through pattern books, especially in the USA, however these are more likely to be produced by architectural design firms - and in fact are a major source of individual (often 'self-managed') house design in North America.^{xlii} However, while pattern books have been a part of architectural development historically, the lack of emphasis on individual creativity and clear design authority means that this is no longer valued by the architectural peer group.

A third key issue of the different approaches and attitudes between architects and mass housing designers is to do with how mass manufacture operates. Many comparisons have been made between mass housing production and car manufacturing, including in the recent study reported on above, however these in fact have enormous differences. Apart from size and mobility issues (which seriously constrain mobile home design transport for instance) the original mass production of cars was based on a very limited number of product options, which became somewhat diversified with the growth of the market to mass proportions, but remained relatively standardised to permit the large scale investment costs in the production line. However, advances in mass manufacturing are leading to this situation rapidly changing. The lack of variation and essential requirement for repetition means that design, and product design in particular, has a very different emphasis than

architectural design, which values individual creative responses closely tied to an understanding of context. As such, mass produced housing with its repetitive elements, is almost certainly to be allocated lower design values by architects.

However, initial mass 'assembly line' forms of car manufacturing were predominantly driven by supply ('push') as much as demand ('pull') and led to large stocks and rapid obsolescence – the latter also driven by changes in the market (partly stimulated by the producers themselves to maintain high demand). More recent approaches to 'just-in-time', 'lean', 'responsive' and 'flexible' car manufacturing has been possible partly due to technical advances in changing the way fabrication takes place, with increased robotisation and much lower costs in changing the actions of the robots through programming. This has radically changed car manufacture, and other forms of mass production, and potentially can also change the context in which the mass production of housing operates. Computer Aided Manufacturing can make hundreds of different components as quickly as making hundreds of identical ones, and can do so with minimised wastage and maximised strength. There is no doubt that some of the advances in manufacturing are affecting building – although generally this is still more so at component level than larger elements of prefabrication.^{xliii} Nevertheless, mass customisation has great potential in basically repetitive tasks such as inherent in mass housing, and with use of a wide range of modular elements the technology can be used to design variation into basically replicating systems, as in the significant Japanese prefabricated housing industry.^{xliv}

However, to date, where mainstream architecture has engaged with these new possibilities it has tended to use mass customisation techniques for even more 'one-off' creative building forms – rather as the earlier approach of architects to prefabricated housing. In fact, the challenge to engage with the use of these processes (and

associated new material forms) in mainstream mass housing production seems to be limited, however, as much because of developer's attitudes as those of architects. As the Scottish evidence described above highlights, British speculative 'volume builders' (developers) of mass housing are typically almost all operating as management contractors, and they hold very few fixed assets apart from land banks, and employ almost nobody directly, relying instead on labour sub-contractors, often self-employed individuals.^{xlv} In the last twenty years, the industry has moved from brick to timber frame, but the employment pattern is similar with timber frames in most cases being treated components supplied by specialist manufacturers off-site and the majority of the construction process is however still site-based.

As an example of higher levels of Modern Methods of Construction (MMC), Architects Proctor and Matthews ^{xlvi} have built up considerable expertise in the use of large, fully factory-finished repeated components in a modular approach. These are developed closely with the manufacturers of the steel-framed units and aimed at providing low cost, sustainable family housing.^{xlvii} Their success in bridging the gap between architects and private developers stems from a serious study of the process of construction, a concern about falling space standards in the UK and an analysis of ways to make the design efficient to construct as well as delivering high density housing which has higher space standards than much of the output of the mass market.^{xlviii} Here the design skills brought by the architects, which is also true of the development at Accordia, is in negotiating a high quality environment that brings added value through density and quality of life. Unlike Accordia however, it also engages in mass customisation of products to the extent that the practice has itself become a developer and thus has more relevance for mass housing processes.



Figure 9 & 10 Proctor Matthews housing

As the 'Homing in on Excellence' report^{xlix} argued, the continuing dominant trend in site-based housing production in the UK is a response to relatively high fluctuation in free market demand, in temporal and geographic terms, and a focus on the initial cost of the building, and not on whole life costs. The very low-cost production system used typically by private sector developers in the UK reduces risk to the minimum in this context, with limited long-term investment in productive capacity. Increased demand for housing due to demographic structural change (i.e. many smaller households), together with the seepage of the construction skills base (which has been cyclically affected by discontinued investment through the booms and busts of fluctuation) both point to potential benefits of more prefabrication in construction.

In this context the fluctuating market (as seen most recently with the financial crises since the above study was published) will work against the investment of housing developers in the fixed assets off-site manufacture requires and the likelihood is thus that developers will opt to use more prefabricated and manufactured components, but continue to put these together on site in often less than desirable conditions, and thus with much more complex linkage and quality control problems.^l The Scottish research has shown that the private sector developers do bring in architects when they need to face new design problems (e.g. brownfield sites, sustainable or wider access issues in design). Architects thus could play a key role in encouraging developers to design in

more mass customization and new material / component options. However whether they would be interested in the resulting need to focus on process in design as opposed to identifiable product, given their value systems, is a moot point.

Finally, there is the issue of lifestyle and its influence on design. The crucial issue here is whose dreams are being designed and built? A majority of the mass market developers interviewed in the Scottish research, had developed two ranges 'Traditional' and 'Contemporary', the decision on which to use in a particular location being made following market research by sales staff as well as planning guidance. This approach to design makes house design tend to the conservative as opposed to innovative in major issues such as overall form, space use – as well as visual appearance. Estate agents are acutely aware of this, as are the all important marketing personnel of developer firms. They also understand what appears to be the associated un-articulated imagery and symbolism of security, fulfilment etc of the suburban mass produced dream – adapted in subtle ways through decoration, furnishings and other additions.^{li} As argued above, while architects may understand this, they often find it an anathema due to its essential ambiguity vis-à-vis deeply embedded values of design purity.

Conclusions

Concerning the mainstream private sector residential development industry in the UK, it would appear that the structural form of mass production of private sector housing will continue to suffer from booms and busts and, as such, risk avoidance will probably lead to a continuation of limited investment in general prefabrication, focussing as before predominantly on components, and thus the wider opportunities of mass customisation for users are unlikely to be developed. Houses will thus continue to be commodities that are only partly manufactured (with limited options) and subsequently

assembled on-site. House forms and styles in this scenario will thus most likely continue to change conservatively as larger scale developers compete for the largest market share – i.e. the middle ground – and base their innovation on marketing of recent products as opposed to research into wider ‘niche’ and potentially polarised forms of demand.

Concerning architects’ attitudes to, and hence engagement with, mainstream private sector development, architects will probably also remain entrenched within their peer group values stressing creativity and individuality, with less emphasis on process issues such as buildability, cost and commercial understanding, and retain an aversion to the ambiguity of popular lifestyle values and imagery in style. As such, architects are likely to continue to remain aloof from, or subordinated to, the design of mainstream private sector housing development – i.e. a continued ‘stand-off’ with limited, wary engagement in certain closely controlled areas of interaction.

What could change this? Perhaps, a querying of the current peer values of architects, through a focus on a deeper understanding of what housing users / consumers actually want/need, and opting for the challenge of designing for this. To encourage this probably needs some investment in deeper demand research, possibly funded by government, to highlight (and stimulate) the desire by house users for wider choice and related ‘lifestyles’ – i.e. encouraging ‘pull’ as opposed to ‘push’ production. However, together with facing other design issues such as accessibility, energy conservation and whole life concepts, process-focussed design (including buildability and costs) is largely what social housing architects undertake, yet their practice-oriented skills are only called on in peripheral ways by private sector developers. These ‘deeper’ design skills thus do exist, although they are not provided in any substantial way in current architecture courses. So perhaps this needs attention in syllabus development with

housing design being given a higher priority, drawing in experience from the private sector developers, as well as architects, in course delivery to emphasise elements of process as well as product in housing design. This could also be (partly) packaged as CPD for architects and developers and thus assist with rapprochement.

Concerning mass customisation, while the building sector in the UK may not opt for the inherent opportunities, as has been noted, some architects are already leading new approaches to this, through providing prefabricated systems with potential for customisation in niche markets. For example the Scottish architectural firm Dualchas has branched out creating a sister company Hebridean Contemporary Homes providing kit homes, predominantly for the Highlands and Islands.ⁱⁱⁱ The modern styling of these (based on traditional long houses) is very different, but similarly regionally contextualised, to that of the English firm Border Oakⁱⁱⁱⁱ, which has also embedded architecture design values.

At a larger scale, the Swedish design giant, IKEA, has developed prefabricated houses which recently began to be provided in the UK - the BoKlok system marketing itself on the basis of being industrially produced in order to attain higher construction quality - is a natural progression from the international success of their contemporary furniture and interiors business. Another well known example of mass customisation is the Huf Haus, which has been used for one-off dwellings for some years and which is now being offered primarily for its eco-credentials and design quality by developers such as Macfarlane Homes.



Fig 11 Huf Haus at West Linton, Macfarlane Homes

Whether these initiatives will have wider impact, however, depends on many issues. For instance, it is not clear yet whether the current downswing in the economy – with its immediate negative impact on large scale private sector housing developers - will favour the growth of more niche marketing approaches, or the contrary (heading for the safety of a ‘middle market’). If the former, this could lead to more attention to differentiated demand and design-focussed research and development. Historically, as noted in the introduction, innovation was an element of widening the market spread in supply terms in the 1930s. However, with reference to the recent Scottish research described above, it is likely that more design skills will only be drawn into the UK private housing development sector when required by more difficult sites or new regulation, unless supply eventually overtakes demand and leads to higher emphasis on design in marketing as developers seek smaller sub-market segments.

Other than the current economic restrictions, it is the planning system which is widely seen as a major constraint on housing supply leading to the situation where better design is not a major differentiating aspect of marketing (as almost everything can be sold). Paradoxically it is also in planning that increased design control is recommended to take place, despite resistance from architects. This restraint on land supply and

development on land also means that most developers make more of their profits on higher land values after residential development than on the house sales per se, and that developers are less inclined to seek to respond to more differentiated forms of demand.

Given the fact that mainstream private sector housing supply will always be profit-oriented, even with government forms of involvement (i.e. through planning and building regulation) it is likely that there will be more impact in the longer term on the importance of wider differentiation of design in mass housing supply if this became demanded by consumers, rather than required by regulation. Hence if design became a more important aspect of marketing and profits than astute land banking, such as currently the case, arguably, architects would be more involved. To stimulate this, architects should be more active in encouraging popular demand for better design and less aloof from wider social clients - in other words, rather than always retaining authority and control in order to satisfy the values of their limited peer group, architects need to invest in encouraging wider social participation in the architectural design process.^{liv}

In conclusion, there is perhaps an opportunity for architects to change aspects of mass produced private sector housing in the UK if they are willing to engage within a design paradigm that understands the processes of mass production, and innovations of relevance to this, as well as the wider social and economic parameters which such housing processes work within – including lifestyle marketing. This requires a set of skills rooted in practice that is perhaps difficult to provide in the academic education environment but which could be developed through more appropriate basic training (e.g. key issues in relations between architecture, economics and society) and continuing professional development. This would also require something of a cultural

change for architects in relation to concepts of creativity and individuality. However, these skills exist already, especially in architects designing contemporary social housing, although this is not seen as a mainstream architectural activity. If architects continue to prioritise the values of their peer group rather than those of wider society they are unlikely to be interested to engage in such challenges. Finally there is a need for deeper research into the basis for assumptions about wider cultural values underpinning house design – whether those of private sector developers or architects.

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2. Houses at Port Sunlight by James Lomax-Simpson 1911-13 Photo :Iain Boyd Whyte
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Image credit: ©Tim Crocker www.timcrocker.co.uk
11. Huf Haus at West Linton, Macfarlane Homes Photo: Fiona McLachlan

References

(Edited book chapter) Bentley, I 'Arcadia becomes Dunroamin: Suburban growth and the roots of opposition' chapter in Oliver et al, 'Dunroamin: the suburban semi and its enemies', (Barrie & Jenkins, London, 1981)

(Book) Burnett, J 'A social history of housing 1815-1985', (Methuen, London, 1986)

(M.Litt Oxford Thesis) Crisp, A *The working-class owner-occupied house of the 1930s*, (at <http://www.pre-war-housing.org.uk/chapter-4the-working-classes-become-owner-occupiers.htm>, 1998) accessed 2/10/08

(Book) Davies, C 'The prefabricated home', (Reaktion Books, London, 2005)

(Edited book chapter) Davis, I 'One of the greatest evils: Dunroamin and the Modern Movement' chapter in Oliver et al, 'Dunroamin: the suburban semi and its enemies', (Barrie & Jenkins, London, 1981)

(Edited book chapter) Davis, I 'A celebration of ambiguity: The synthesis of contrasting values' chapter in Oliver et al, 'Dunroamin: the suburban semi and its enemies', (Barrie & Jenkins, London, 1981)

(Book) Glendinning, M & Watters, D '*Home Builders: Mactaggart and Mickel and the Scottish Housebuilding Industry*', (Royal Commission on the Ancient and Historical Monuments of Scotland, Edinburgh, 1999)

(Edited Book in press) Jenkins, P & Forsyth, L *Architecture, Participation and Society*, (Routledge: London, 2009)

(Report) Housing Forum '*Homing in on Excellence: A commentary on the use of offsite fabrication methods for the UK house-building industry*'. (The Housing Forum: London, 2002)

(Edited Book) Oliver, P, Davis, I & Bentley, I '*Dunroamin: the suburban semi and its enemies*', (Barrie & Jenkins, London, 1981)

(Edited book chapter) Oliver, P '*Great expectations: Suburban values and the role of the media*', chapter in Oliver et al, '*Dunroamin: the suburban semi and its enemies*', (Barrie & Jenkins, London, 1981)

(Report) Scottish Government, '*Design at the Heart of House-Building*', available at: <http://www.scotland.gov.uk/Publications/2007/11/08110758/0> (Scottish Government, Edinburgh, 2008)

(Book) Till J & Schneider T '*Flexible Housing*', (Architectural Press, London, 2007)

(Book) van Doesburg, Theo '*On European Architecture: Complete essays from Het Bouwbedrijf 1924-1931*' (Birkhäuser, Basel, 1990)

(Book) Venturi, R "Complexity and Contradiction in Architecture" (The Architectural Press, London, 1977) p84

Notes

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- i Oliver et al, *Dunroamin: the suburban semi and its enemies*, (Barrie & Jenkins, London, 1981) p42
 - ii Boumphrey was not only a founding member of the MARS (Modern Architectural Research) Group inaugurated in 1933 to promote Modern Movement architecture in Britain, but had also taken part in the International Congress of Modern Architecture (CIAM) Mediterranean cruise that produced the Athens Charter later that year. While many influential Modern Movement architects were involved in this venture, it was dominated by Le Corbusier, who published his Ville Radieuse plan the same year and was particularly strident in critique of suburban development. Ironically Boumphrey was neither British nor an architect – he was a Canadian engineer but had established himself as a pioneering modern architect/designer in Britain (ibid p 38).
 - iii The Cadbury family had created the Bourneville Garden Suburb in 1913.
 - iv Burnett cites C F G Masterman's 1909 study 'The condition of England'. Burnett, J 'A social history of housing 1815-1985', (Methuen, London, 1986) p 191
 - v The term 'mainstream private sector housing development' is used here to indicate large scale and dominant forms of housing supply by private sector developers and/or builders, i.e. as opposed to state/social housing provision and private sector supply by individual developers (whether historically, as originally this was dominant, or contemporarily - when it is subordinate).
 - vi In so doing it recognises that, for instance, more empirical research into architects' values vis-à-vis housing design (and especially mass housing); deeper research into cultural assumptions by developers vis-à-vis the wider public's values in housing design; and comparative research into different housing design processes between private and social housing – are all valid areas of research the paper raises, but which are beyond the scope of this paper to address.
 - vii The engagement of the central state in housing was due to continued rapid in-migration to urban areas from rural areas and rapid natural growth of existing urban populations; continued deterioration in living conditions of the poor, and the onward impact of this on the more wealthy, especially in urban areas (e.g. disease and public health issues); political changes which broadly accepted a wider state role in supporting lower income groups; and collapse of the then existing (generally rental) private housing sector.
 - viii London led the way with the private supply of new houses in the 1920s and 1930s, most of this being in suburban expansion fostered by new railway development (overground and underground). To give some sense of scale, of the 150,000 houses being built each year in England in the 1920s, three out of four was built by speculative builders with speculative private housing supply for sale peaking initially in the 1930s with between 2.7 and 2.9 million houses being built of some 4.0 to 4.2 million total between the wars (Burnett 1986, Oliver et al 1981). In Scotland the numbers of new housing were smaller and the private sector only delivered around a third of the 34,000 houses built between the wars (1919-39). This peaked in 1924/5 with more than 50% of house completions being built by the private sector and this was significant in underpinning the development of the speculative house building sector in Scotland (Glendinning & Watters 1999).
 - ix Davis, I 'One of the greatest evils: *Dunroamin and the Modern Movement*' (Barrie & Jenkins, London, 1981) p 29. Davis indicates that the criticisms of the 1920-39 period bore close similarities to those concerning the growth of Victorian suburbs of the late 19th century – and this is borne out in the detailed criticism related in Burnett 1986.
 - x The demand was stimulated by building society finance being widened to permit access of lower income groups and development of a wider range of (more specialised) house types (i.e. for 'non-standard' households); and other cost reduction measures. Building societies reduced down-payments and interest rates (passing some of the higher risk to the developer/builder). Developers/builders adapted though a process of attrition with closures of smaller firms, with larger firms investing in land banks, streamlining on-site building processes with bulk purchase of materials and accepting lower profit margins across larger output as well as developing a limited range of house types, primarily the two storey semidetached house (an average of 10 house types per developer was normal in 1936 - Davis 1981 p 97). Wider access and demand is illustrated through the National Federation of Owner Occupiers submission to the Departmental Committee on Rating and Valuation of the Borough of Surbiton in 1939, providing examples of a clerk on an income of £4 per week buying a house which cost £470 and a worker, with three children, on an income of £3 5s. Some houses costs as low as £365, thus with significant numbers of skilled workers becoming owner-occupiers (HLG/56/157, quoted in Crisp 1998).
 - xi Davis, I 'A celebration of ambiguity: *The synthesis of contrasting values*' chapter in Oliver et al, *Dunroamin: the suburban semi and its enemies*, (Barrie & Jenkins, London, 1981) p77-103
 - xii To these five could be added the sixth – that of exchange value as opposed to use value. Home ownership needed to take into consideration re-sale values as society became more mobile and hence re-sale implications had a relatively high level of importance in decision-making vis-à-vis the actual functional use potential of the house. It also highly influenced building society financial support.

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- As Bentley 1981 points out, this led to conservatism and relatively high levels of standardisation in basic design, with individualism mainly being expressed in decoration, furniture and gardens and hence moveable aspects of lifestyle. House design style, however, was also closely linked to status and community 'exclusivity' to retain economic market value.
- xiii Allen quoted in Davis, I "A Celebration of Ambiguity" in "Dunroamin: the suburban semi and its enemies" Barrie & Jenkins (1981) p81/82
- xiv Government statistics for the whole of Great Britain 1945-98 show private sector developers providing 54% of all new housing in the period, state sector 41% and social landlords 5%. Private sector provision dipped to a low of 12% in 1951, passing the 50% mark in 1959 and peaked at 86% in 1988 and 1998. Source: Housebuilding completions: by sector, 1945-1998: Social Trends 30 on www.statistics.gov.uk (accessed 12/09/08). For Scotland the proportions (1945-97) were very similar: 56% private, 41% state and 3% social landlords, private supply dipping to a low of 3% in 1950 and peaking at 86% in 1976 and 1996 (Glendinning & Watters 1999)
- xv The Scottish situation followed suit, with slightly lower proportions than the whole UK (sources as above).
- xvi A further criticism concerns urban design, especially inefficient sprawl and lack of cohesive urban space provision i.e. place-making, which is added to by planners' critique of limited social amenity provision and traffic issues. This is dealt with in a separate paper by the researchers on private sector housing design, urban design and planning.
- xvii Although the research tender used the term 'house builder' in fact most of the firms are house developers with only some also building the houses / estates they design – the majority subcontracting construction through a series of smaller firms.
- xviii The research was commissioned through competitive tender in September 2006 and was implemented between October 2006 and September 2007 by a winning consortium of Scottish Higher Education Institutions (HEIs), led by the School of the Built Environment, Heriot-Watt University, in association with Architecture at Edinburgh University and the School of Architecture at Edinburgh College of Art. The consortium was led by Prof. Paul Jenkins, with Dr Harry Smith and Jimmy Morgan from Heriot-Watt, School of the Built environment; Dr Soledad Garcia Ferrari from ScotMARK, the research centre based in the School of Architecture Edinburgh College of Art and Fiona McLachlan from Architecture at the University of Edinburgh. The research focused primarily on development **processes**, but also reflects the impact of this on housing **products** through the case studies.
- xix Phase I had a 25% response rate from developers contacted, representing 37% of all private sector house completions across Scotland in 2005/6, and the detailed nature of this response was considered fully representative of the sector's operations overall by the Research project Advisory group, and hence a firm foundation for Phases II and III. A total of 106 developers were contacted: 100 Homes for Scotland (HfS) members and 6 other developers identified as important nationally or regionally. There were a total of 27 returns, 26 from HfS members and one other. The overall response rate in relation to the target was therefore 25.5%, which is quite acceptable for a postal survey. The 27 firms, which took part in the survey, had completed 7,277 dwellings, which represents 37.3% of all private sector completions in that year. Phase II consisted of semi-structured interviews with a sample selection of 24 of the developers who responded to Phase I. Given the relatively small sample and geographical concentration of developers in Central Scotland it was proposed that selection be aimed at gaining a good proportional representation of types of firm across an agreed set of criteria drawing on the Phase I responses.
- xx Homes for Scotland, the apex organisation for the majority of Scottish private sector housing developers / builders, played an important role in supporting the research, and Architecture + Design Scotland also acted on the Research project Advisory Group, with the research consortium consulting a wider sector Reference Group during the research period.
- xxi Full report at: <http://www.scotland.gov.uk/Publications/2007/11/08110758/0> A key reflection concerning the prescribed design methodology is the extent of 'self-selection' concerning design interest in the research, in that only firms which responded to the email questionnaire were followed up in the second and third more detailed phases of the study. However (as the study argues), this is not a negative reflection but a positive one in that, if any bias exists, it only serves to further highlight the position of the private sector developers most interested in design.
- xxii Aspects such as marketing, economics, profitability, the planning system and company image
- xxiii Scottish Government "Design at the Heart of House Building" report pp45-46
- xxiv The developer may use 'jackets' to respond to concerns of the local planning authority in order to customise the product for a particular context. This can be either in terms of materiality, or to respond to the localised context such as an exposed gable wall where a window can be added. Alternatively, architects may be appointed to re-present an entire product range with a 'contemporary' design which can then be used on a number of sites.
- xxv Such as Philip Webb's Red House (1859) or Charles Rennie Mackintosh's Hill House at Helensburgh (1902-4). In general, Arts and Crafts houses were composed of additive parts, each with their own expression, which tend to take priority over the whole.

- xxvi Venturi, R (1977) "Complexity and Contradiction in Architecture" The Architectural Press, London p84
- xxvii Dominating all other concerns was land supply as well as other cost considerations such as marketability and to some extent sale price
- xxviii The title 'Architect' in the UK is defined by the Architects Act 1997 and is tightly regulated. The function of architectural design is however not regulated or protected and therefore requires no formal qualification or training.
- xxix Other professionals e.g. quantity surveyors, project managers and engineers. The number of architects employed was however, higher than other specialized professional skills such as town planners and landscape architects.
- xxx The approach to design in brown field and more urban sites is quite different due to the nature of land supply and planning and more likely to result in bespoke design.
- xxxi As an example, developers will only incorporate other design-related issues such as wider social accessibility and sustainability if regulated to do so as they argue that these are not customer led and also entail higher up-front costs (and hence affect saleability). In this respect, there is little evidence of understanding or design based on the concept of 'whole life' houses, partly due to the nature of the housing market as developers assume households will move when facing different needs.
- xxxii This was evidenced at the beginning of the research process when the apex organisation for private sector house developers in Scotland flatly refused to cooperate with the study which they saw as a way for the government (representing an architectural point of view) to openly criticise their activities. Only after stressing the neutral position opted for by the research team did the organisation's representatives engage and assist the study – and indeed the outcome was largely seen by the developers as highlighting their position on design as opposed to what they see as that of architects. The study thus provides a basis for a more balanced discussion on the issues highlighted between both parties.
- xxxiii Davies (2005) claims that some 80% of buildings in the so-called 'developed world' do not involve architects – and an even higher proportion are in this category in the 'developing' world where world population is highest.
- xxxiv 67% USA, 70% UK and 60% Japan.
- xxxv Who subsequently recommended to the developer that they appoint two other practices to give variety in the development – Alison Brookes Architects and Maccreanor Lavington.
<http://www.cabe.org.uk/case-studies/accordia>
- xxxvi Such as PPS3 in England and Wales (2006)
<http://www.communities.gov.uk/publications/planningandbuilding/pps3housing> and SPP3 (2008) in Scotland <http://www.scotland.gov.uk/Publications/2008/07/25092557/0>
- xxxvii For example Le Corbusier, Frank Lloyd Wright, Walter Gropius, Charles & Ray Eames, Jean Prouvé, Richard Rogers and various High Tech architects. The most distinct fantasy were Archigram's Living Pods of the mid 1960s (which drew on Buckminster fuller's Dymaxion House ideas of 3 decades prior).
- xxxviii Many of those that did (e.g. Corbusier's housing at Pessac) were later seriously altered by the residents in what would be seen as 'non-architectural' ways. The alterations by the house owners at Pessac can be seen as the need of the occupiers for a sense of individualisation, however for the architect this undermines the consistency of the conceptual design, which essentially is about homogeneity of thought. Inviting third-party customisation in any way is, for many architects, to dilute the authority of the design.
- xxix Davies, C (2005) The prefabricated home, Reaktion Books: London
- xl This needs to be seen as an 'ideal type' for professional activity, as in fact much production by architects fails this test, or only minimally passes it (although what is produced may be excellent in terms of the functions it serves and the technical manner in which it does this).
- xli This is accentuated as most architectural training in academic settings is almost exclusively virtual, with low levels of reality vis-à-vis clients, economics etc.
- xlii The most recent innovations in these include web-based interactive drawing tools with limited palettes of house components for buyers to plan their own house, which when finished can turn out detailed drawings and material lists etc.
- xliii An associated change is through new materials - one example is Structural Insulated Panels SIPs, which are increasingly being used in house construction. These can give considerable freedom in design and provide important cost savings and there is no reason why they cannot be used in any 'creative' architecture.
- xliv Davies, C The prefabricated home, (Reaktion Books, London, 2005)
- xlv Many of the developers in the Scottish study have no construction staff at all and so are not 'volume builders' but more accurately specialized retailers, marketing a product made entirely by others.
(<http://www.proctorandmatthews.com/> and <http://sloliving.co.uk/>)
- xlvi Most notably in three projects (Prefabulous Housing), SLO (Simple Living Opportunities) at South Chase, and (SmartLIFE). SmartLIFE is a partnership operating in three countries: UK, Sweden and Germany with a demonstration project being developed in Cambridgeshire.
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- xlviiii Matthews, Andrew "SLO – Simple Living Opportunities" RIBA Research Forum 2008
- xlx Housing Forum (2002) Homing in on Excellence: A commentary on the use of offsite fabrication methods for the UK house-building industry. The Housing Forum: London.
- i On the one hand growing regulation of health and safety issues are an important stimulant to more off-site manufacturing, while on the other hand the growth of this has reduced the general construction-related skills base
- li This area needs considerable more research, beyond the scope of this paper, - as is in fact whether architects perceive of this as a valid design issue or not.
- lii (www.hebrideanhomes.com/)
- liii (www.borderoak.com/pages/homepage.shtml).
- liv This is the subject of a forthcoming book entitled 'Architecture, participation and society' edited by Jenkins & Forsyth (Routledge – publication Sept 2009).